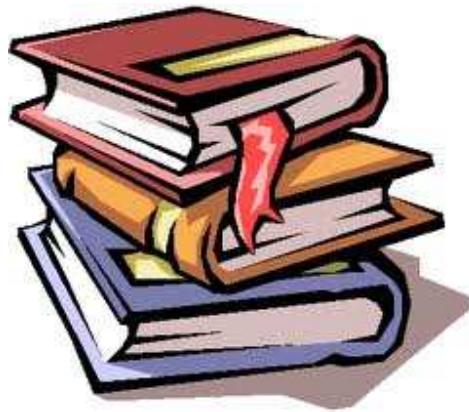


LIBRARY MANAGEMENT SYSTEM DATABASE DESIGN FINAL PROJECT



SUBMITTED BY,
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SYNTAX CREATING DATABASE

QUERY:

```
CREATE DATABASE `LIBRARY`;
```

SQL SYNTAX FOR CREATING FIRST TABLE: LOGIN

QUERY:

```
CREATE TABLE `LIBRARY`.`LOGIN` (`ID` INT NOT NULL ,`USER_NAME` VARCHAR(
30 ) NOT NULL ,`PASSWORD` VARCHAR( 30 ) NOT NULL ,`PRIVILEGE` VARCHAR( 10
) NOT NULL) ENGINE = MYISAM ;
```

SETTING PRIMARY KEY FOR ID

QUERY:

```
ALTER TABLE `LOGIN` ADD PRIMARY KEY (`ID` );
```

SETTING AUTO INCREMENT IN FG FOR ID

QUERY:

```
ALTER TABLE `login` CHANGE `ID` `ID` INT (11) NOT NULL AUTO_INCREMENT;
```

SETTING ENGINE AS INNODB

QUERY:

```
ALTER TABLE `login` ENGINE = INNODB;
```

INDEXING

QUERY:

```
ALTER TABLE `login` ADD INDEX (`USER_NAME` );
```

```
ALTER TABLE `login` ADD INDEX(`PRIVILEGE`)
```

SQL FOR INSERTING VALUES IN TO TABLE

QUERY:

```
INSERT INTO `LIBRARY`.`login` (`ID`, `USER_NAME`, PASSWORD`, `PRIVILEGE`)
VALUES ('1', 'ADMINISTRATOR', 'ADMINISTRATOR', 'ADMIN');
```

```
INSERT INTO `LIBRARY`.`login` (`ID`, `USER_NAME`, `PASSWORD`, `PRIVILEGE`)
VALUES ('2', 'FACULTY', 'FACULTY', 'FACULTY');
```

```
INSERT INTO `LIBRARY`.`login` (`ID`, `USER_NAME`, `PASSWORD`,  
`PRIVILEGE`) VALUES ('3', 'RESHMA', 'RESHMA', 'STUDENT');
```

```
INSERT INTO `LIBRARY`.`LOGIN` (`ID`, `USER_NAME`, `PASSWORD`,  
`PRIVILEGE`) VALUES ('4', 'RESKHA', 'REKHA', 'STUDENT');
```

SQL SYNTAX FOR CREATING TABLE: PRIVILEGE

QUERY:

```
CREATE TABLE `LIBRARY`.`PRIVILEGE` (`ID` INT NOT NULL, `PRIVILEGE`  
VARCHAR(10) NOT NULL) ENGINE = MYISAM;
```

SETTING ENGINE =INNODB

QUERY:

```
ALTER TABLE `PRIVILEGE`ENGINE = INNODB;
```

SETTING PRIVILEGE UNIQUE VALUE

QUERY:

```
ALTER TABLE `PRIVILEGE` ADD UNIQUE(`PRIVILEGE`)
```

Query took 0.2112 sec

INSERTING

QUERY:

```
INSERT INTO `LIBRARY`.`PRIVILEGE` (`ID`, `PRIVILEGE`) VALUES ('1',  
'ADMIN'), ('2', 'FACULTY');
```

```
INSERT INTO `LIBRARY`.`PRIVILEGE` (`ID`, `PRIVILEGE`) VALUES ('3',  
'STUDENT');
```

SQL SYNTAX FOR CREATING TABLE: BOOK_DETAILS

QUERY:

```
CREATE TABLE `LIBRARY`.`BOOK_DETAILS` (`ID` INT NOT NULL ,  
`TITLE` VARCHAR( 30 ) NOT NULL ,`AUTHOR` TEXT NOT NULL ,`PUBLISHER` VARC  
HAR( 30 ) NOT NULL ,`KEYWORD` VARCHAR( 60 ) NOT NULL ,`ISBN` INT NOT NUL  
L ,`ABSTRACT` VARCHAR( 60 ) NOT NULL ,`YEAR_OF_PU  
BLISHING` DATE NOT NULL);
```

SETTING ENGINE AS INNODB

QUERY:

```
ALTER TABLE `book_details` ENGINE = INNODB;
```

SETTING PRIMARY KEY

QUERY:

```
ALTER TABLE `BOOK_DETAILS` ADD PRIMARY KEY (`ID` );
```

SETTING ISBN NO: UNIQUE

```
ALTER TABLE ` BOOK_DETAILS ` ADD UNIQUE (`ISBN`);
```

INDEXING

QUERY:

```
ALTER TABLE ` BOOK_DETAILS ` ADD INDEX (`PRIVILEGE` );
```

```
ALTER TABLE ` BOOK_DETAILS ` ADD INDEX (`YEAR_OF_PUBLISHING` );
```

```
ALTER TABLE ` BOOK_DETAILS ` ADD INDEX (`ABSTRACT` );
```

```
ALTER TABLE ` BOOK_DETAILS ` ADD INDEX (`ISBN` );
```

```
ALTER TABLE ` BOOK_DETAILS ` ADD INDEX (`PUBLISHER` );
```

```
ALTER TABLE ` BOOK_DETAILS ` ADD INDEX (`TITLE` );
```

INSERTING VALUES

QUERY:

```
INSERT INTO `LIBRARY`.`book_details` (`ID`, `TITLE`, `AUTHOR`,  
`PUBLISHER`, `KEYWORD`, `ISBN`, `ABSTRACT`, `YEAR_OF_PUBLISHING`,  
`PATH`, `PRIVILEGE`) VALUES ('1001', ' Harry Potter', ' J. K.  
Rowling', ' cityhills', ' wizard,adventures', ' 978', ' a series of  
seven fantasy novels', ' 2000-03-08', ' F:\S 4\DATABASE  
ADMINISTRATION', ' STUDENT')
```

```
INSERT INTO `LIBRARY`.`book_details` (`ID`, `TITLE`, `AUTHOR`,  
`PUBLISHER`, `KEYWORD`, `ISBN`, `ABSTRACT`, `YEAR_OF_PUBLISHING`,
```

```
`PATH`, `PRIVILEGE`) VALUES ('1002', 'A Tale of Two Cities',  
'Charles Dickens', 'macgrew', 'two cities', '787', 'wonderful  
novel', '2011-03-21', 'F:\\S 4\\DATABASE ADMINISTRATION\\',  
'STUDENT');
```

CREATING TABLE: BOOK_RATINGS

QUERY:

```
CREATE TABLE `LIBRARY`.`BOOK_RATINGS` (`ID` INT NOT NULL, `BID` INT NOT  
NULL, `Ratings` INT NOT NULL, `Note` VARCHAR(50) NOT NULL, `U_ID` INT  
NOT NULL, PRIMARY KEY (`ID`)) ENGINE = MyISAM;
```

SETTING ENGINE AS InnoDB

QUERY:

```
ALTER TABLE `book_ratings` ENGINE = InnoDB;
```

ADDING ONE MORE FIELD NAMED PRIVILEGE TO THE TABLE BOOK_RATINGS TO SET THE PRIVILEGE OF
EACH USER

QUERY:

```
ALTER TABLE `BOOK_RATINGS` ADD `PRIVILEGE` VARCHAR  
(10) NOT NULL AFTER `UNAME`;
```

SETTING FIELD PRIVILEGE A DEFAULT VALUE: STUDENT

QUERY:

```
ALTER TABLE `book_details` CHANGE `PRIVILEGE` `PRIVILEGE` VARCHAR(10)  
CHARACTER SET latin1 COLLATE latin1_swedish_ci NOT NULL DEFAULT  
'STUDENT'
```

SETTING AUTO INCREMENT FOR ID

QUERY:

```
ALTER TABLE `BOOK_RATINGS` CHANGE `ID` `ID` INT (11) NOT NULL  
AUTO_INCREMENT;
```

INDEXING

QUERY:

```
ALTER TABLE `BOOK_RATINGS` ADD INDEX (`BID`);
```

```

ALTER TABLE `BOOK_RATINGS` ADD INDEX (`Ratings`);

ALTER TABLE `BOOK_RATINGS` ADD INDEX (`Note`);

ALTER TABLE `BOOK_RATINGS` ADD INDEX (`U_ID`);

ALTER TABLE `BOOK_RATINGS` ADD INDEX (`PRIVILEGE`);

ALTER TABLE `Book_Ratings` ADD UNIQUE (`U_ID`);

```

(Query took 0.2212 sec)

INSERTING VALUES

QUERY:

```

INSERT INTO `LIBRARY`.`BOOK_RATINGS` (`ID`, `BID`, `RATINGS`, `NOTE`,
`U_ID`) VALUES ('1', '1002', '4', 'GREAT STORY', '2', 'FACULTY');

```

```

INSERT INTO `LIBRARY`.`BOOK_RATINGS` (`ID`, `BID`, `RATINGS`, `NOTE`,
`U_ID`) VALUES ('2', '1001', '3', 'SEVEN FANTASY NOVELS', '2',
'FACULTY');

```

```

INSERT INTO `LIBRARY`.`BOOK_RATINGS` (`ID`, `BID`, `RATINGS`, `NOTE`,
`U_ID`) VALUES ('3', '1002', '3', 'BED TIME STORIES', '3', 'STUDENT');

```

```

INSERT INTO `LIBRARY`.`BOOK_RATINGS` (`ID`, `BID`, `RATINGS`, `NOTE`,
`U_ID`, `PRIVILEGE`) VALUES ('4', '1001', '1', 'NOT ACCEPTABLE
CONCEPT', '1', 'ADMIN');

```

```

INSERT INTO `LIBRARY`.`BOOK_RATINGS` (`ID`, `BID`, `RATINGS`, `NOTE`,
`U_ID`, `PRIVILEGE`) VALUES ('5', '1001', '2', 'NICE STORY', '4',
'STUDENT');

```

DATABASE : LIBRARY























| | Table  | Action | Records ¹ | Type | Collation | Size | Overhead |
|---|---|---|----------------------|--------|-------------------|-----------|----------|
|  | book_details |       | 2 | InnoDB | latin1_swedish_ci | 160.0 KiB | - |
|  | book_ratings |       | 3 | InnoDB | latin1_swedish_ci | 112.0 KiB | - |
|  | login |       | 4 | InnoDB | latin1_swedish_ci | 64.0 KiB | - |
| | 3 table(s) | Sum | 9 | MyISAM | latin1_swedish_ci | 336.0 KiB | 0 B |

TABLE : LOGIN

| <u>ID</u> | <u>USER NAME</u> | <u>PASSWORD</u> | <u>PRIVILEGE</u> |
|-----------|------------------|-----------------|------------------|
| 1 | ADMINISTRATOR | ADMINISTRATOR | ADMIN |
| 2 | FACULTY | FACULTY | FACULTY |
| 3 | RESHMA | RESHMA | STUDENT |
| 4 | rekha | rekha | STUDENT |

Query took 0.0005 sec

TABLE : BOOK_DETAILS

| <u>ID</u> | <u>TITLE</u> | <u>AUTHOR</u> | <u>PUBLISHER</u> | <u>KEYWORD</u> | <u>ISBN</u> | <u>ABSTRACT</u> | <u>YEAR OF PUBLISHING</u> | <u>PATH</u> | <u>PRIVILEGE</u> |
|-----------|----------------------|-----------------|------------------|-------------------|-------------|----------------------------------|---------------------------|--------------------------------|------------------|
| 1001 | Harry Potter | J. K. Rowling | cityhills | wizard,adventures | 978 | a series of seven fantasy novels | 2000-03-08 | F:\S 4\DATABASE ADMINISTRATION | STUDENT |
| 1002 | A Tale of Two Cities | Charles Dickens | macgrew | two cities | 787 | wonderful novel | 2011-03-21 | F:\S 4\DATABASE ADMINISTRATION | STUDENT |

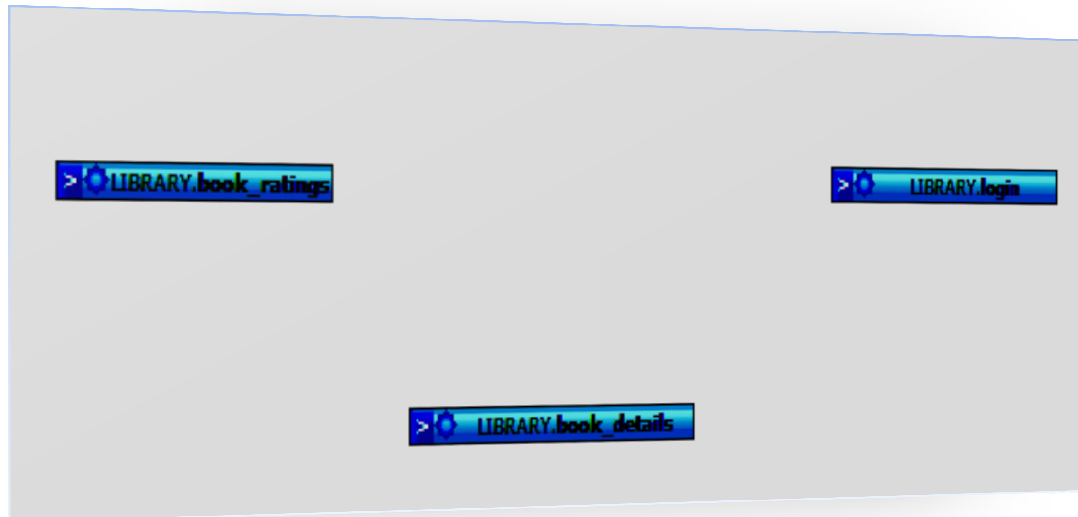
Query took 0.0006 sec

TABLE : BOOK_RATING

| <u>ID</u> | <u>BID</u> | <u>Ratings</u> | <u>Note</u> | <u>U ID</u> | <u>PRIVILEGE</u> |
|-----------|------------|----------------|------------------------|-------------|------------------|
| 1 | 1002 | 4 | great story | 2 | FACULTY |
| 2 | 1001 | 3 | seven fantasy novels | 2 | FACULTY |
| 3 | 1002 | 3 | bed time stories | 3 | STUDENT |
| 4 | 1001 | 1 | Not acceptable concept | 1 | ADMIN |
| 5 | 1001 | 2 | Nice Story | 4 | STUDENT |

Query took 0.0005 sec

DATABAE BEFORE SETTING RELATIONSHIP

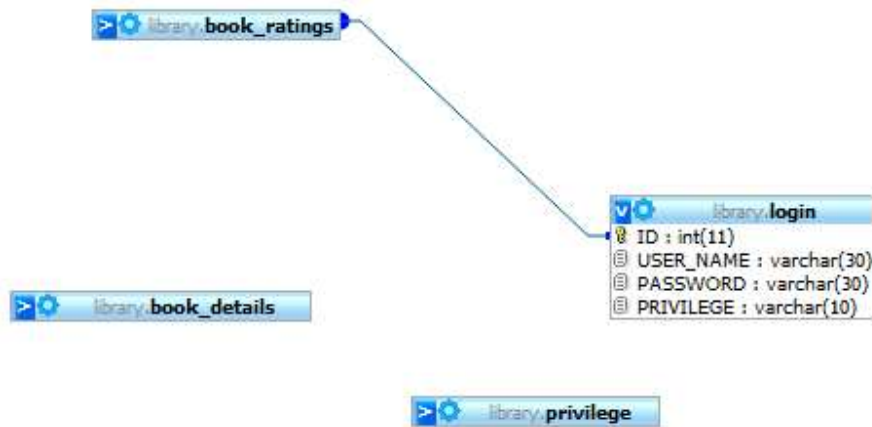


| LIBRARY.book_ratings |
|---------------------------|
| ID : int(11) |
| # BID : int(11) |
| # Ratings : int(11) |
| # Note : varchar(50) |
| # U_ID : int(11) |
| # PRIVILEGE : varchar(10) |

| LIBRARY.login |
|-------------------------|
| ID : int(11) |
| USER_NAME : varchar(30) |
| PASSWORD : varchar(30) |
| PRIVILEGE : varchar(10) |

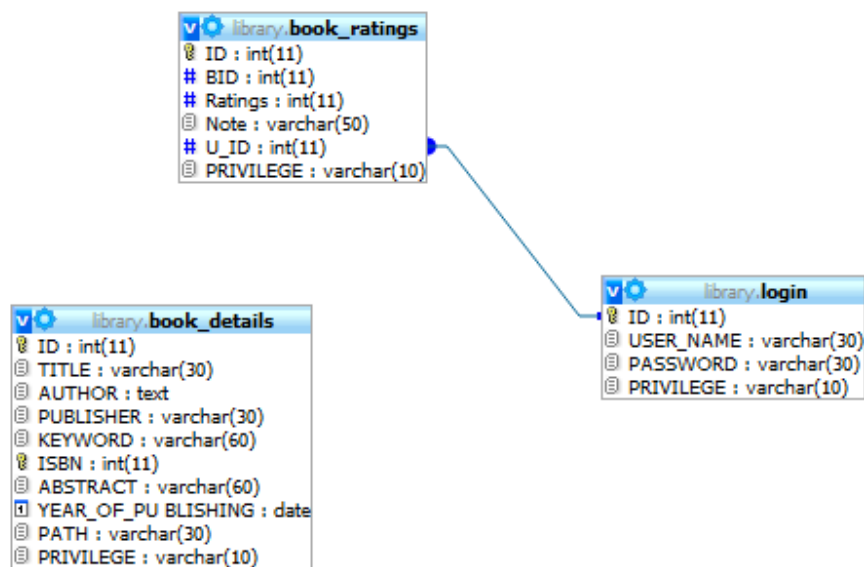
| LIBRARY.book_details |
|---------------------------|
| ID : int(11) |
| TITLE : varchar(30) |
| AUTHOR : text |
| PUBLISHER : varchar(30) |
| KEYWORD : varchar(60) |
| ISBN : int(11) |
| ABSTRACT : varchar(60) |
| YEAR_OF_PUBLISHING : date |
| PATH : varchar(30) |
| PRIVILEGE : varchar(10) |

DATABASE AFTER CREATING TABLE PRIVILEG

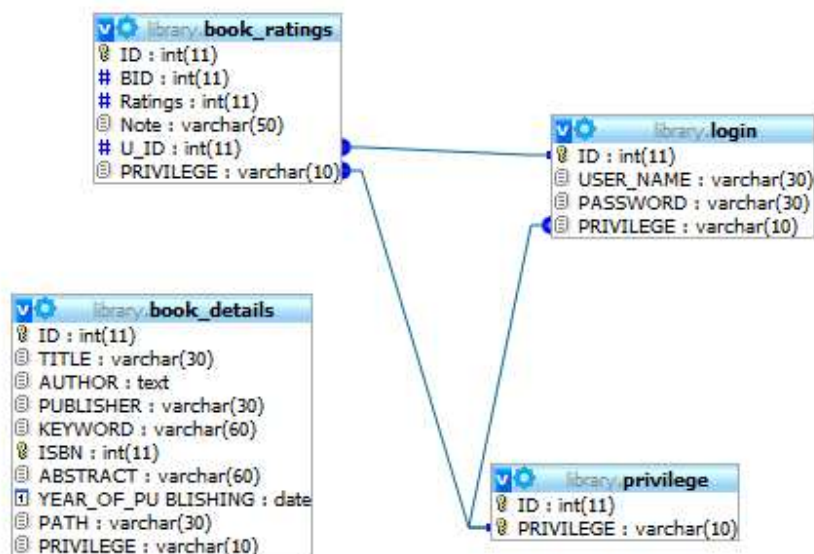


DATABASE AFTER SETTING RELATIONSHIPS

1. U_ID (FK) IN TABLE BOOK_RATING REFERENCING TO ID(PK) OF TABLE LOGIN



2. FINAL DATABASE



SQL result

Host: localhost

Database: LIBRARY

Generation Time: Mar 27, 2011 at 03:23 AM

Generated by: phpMyAdmin 3.2.4 / MySQL 5.1.41

SQL query: SELECT * FROM 'login' LIMIT 0, 30 ;

Rows: 4

| ID | USER_NAME | PASSWORD | PRIVILEGE |
|----|---------------|---------------|-----------|
| 1 | ADMINISTRATOR | ADMINISTRATOR | ADMIN |
| 2 | FACULTY | FACULTY | FACULTY |
| 3 | RESHMA | RESHMA | STUDENT |
| 4 | rekha | rekha | STUDENT |

SQL result

Host: localhost

Database: library

Generation Time: Mar 27, 2011 at 03:24 AM

Generated by: phpMyAdmin 3.2.4 / MySQL 5.1.41

SQL query: SELECT * FROM `book_details` LIMIT 0, 30 ;

Rows: 2

| ID | TITLE | AUTHOR | PUBLISHER | KEYWORD | ISBN | ABSTRACT | YEAR_OF_PUBLISHING | PATH | PRIVILEGE |
|------|----------------------|-----------------|-----------|-------------------|------|----------------------------------|--------------------|--------------------------------|-----------|
| 1001 | Harry Potter | J. K. Rowling | cityhills | wizard,adventures | 978 | a series of seven fantasy novels | 2000-03-08 | F:\S 4\DATABASE ADMINISTRATION | STUDENT |
| 1002 | A Tale of Two Cities | Charles Dickens | macgrew | two cities | 787 | wonderful novel | 2011-03-21 | F:\S 4\DATABASE ADMINISTRATION | STUDENT |

SQL result

Host: localhost

Database: library

Generation Time: Mar 27, 2011 at 03:25 AM

Generated by: phpMyAdmin 3.2.4 / MySQL 5.1.41

SQL query: SELECT * FROM `book_ratings` LIMIT 0, 30 ;




Rows: 5

| ID | BID | Ratings | Note | U_ID | PRIVILEGE |
|----|------|---------|------------------------|--------|-----------|
| 1 | 1002 | 4 | great story | 2 [->] | FACULTY |
| 2 | 1001 | 3 | seven fantasy novels | 2 [->] | FACULTY |
| 3 | 1002 | 3 | bed time stories | 3 [->] | STUDENT |
| 4 | 1001 | 1 | Not acceptable concept | 1 [->] | ADMIN |
| 5 | 1001 | 2 | Nice Story | 4 [->] | STUDENT |

QUERY OPTIMIZATION

TABLE: LOGIN

Q: GET ALL THE RESULTS CONTAINING ID AS 3 USERNAME AS RESHMA AND PRIVILEGE AS STUDENT

| | ID | USER_NAME | PASSWORD | PRIVILEGE |
|---|----|-----------|----------|-----------|
|    | 3 | RESHMA | RESHMA | STUDENT |

QUERY:

| SEARCH NO | QUERY | TIME |
|-----------|---|-----------------------|
| 1 | SELECT * FROM `login` WHERE `ID` = 3; | Query took 0.0005 sec |
| 2 | SELECT * FROM `LOGIN` WHERE `USER_NAME` LIKE 'RESHMA' | Query took 0.0007 sec |
| 3 | SELECT * FROM `LOGIN` WHERE `PRIVILEGE` LIKE 'STUDENT' | Query took 0.0005 sec |
| 4 | SELECT * FROM `LOGIN` WHERE `ID` = 1 AND `USER_NAME` LIKE 'RESHMA' | Query took 0.0005 sec |
| 5 | SELECT * FROM `LOGIN` WHERE `ID` = 3 AND `PRIVILEGE` LIKE 'STUDENT' | Query took 0.0005 sec |
| 6 | SELECT * FROM `LOGIN` WHERE `ID` = 3 AND `USER_NAME` LIKE 'RESHMA' AND `PRIVILEGE` LIKE 'STUDENT' | Query took 0.0005 sec |

IN THE ABOVE CASE ALL QUERIES EXCEPT THE SECOND QUERY CAN BE CONSIDERED AS THE OPTIMISED QUERY. HOWEVER THE BEST OPTIMISED QUERY WILL BE THE 6TH ONE.

TABLE: BOOK_DETAILS

Q: GETTING ALL RESULTS FOR WHICH ID AS 1001, TITLE AS HARRY POTTER, AUTHOR AS J.K ROWLING, KEYWORD AS WIZARD, ADVENTURES, ISBN AS 978, PUBLISHER AS CITYHILLS, AND YEAR OF PUBLISHING AS 2000-03-08.

| | ID | TITLE | AUTHOR | PUBLISHER | KEYWORD | ISBN | ABSTRACT | YEAR_OF_PUBLISHING | PATH | PRIVILEGE |
|---|------|--------------|---------------|-----------|-------------------|------|----------------------------------|--------------------|--------------------------------|-----------|
|    | 1001 | Harry Potter | J. K. Rowling | cityhills | wizard,adventures | 978 | a series of seven fantasy novels | 2000-03-08 | F:\S 4\DATABASE ADMINISTRATION | STUDENT |

| SEARCH NO | QUERY | TIME |
|-----------|---|------------|
| 1 | SELECT * FROM `book_details` WHERE `ID` = 1001 | 0.0006 sec |
| 2 | SELECT * FROM `BOOK_DETAILS` WHERE `TITLE` LIKE 'HARRY POTTER' | 0.0006 sec |
| 3 | SELECT * FROM `BOOK_DETAILS` WHERE `AUTHOR` LIKE 'J. K. ROWLING' | 0.0005 sec |
| 4 | SELECT * FROM `BOOK_DETAILS` WHERE `PUBLISHER` LIKE 'CITYHILLS' | 0.0006 sec |
| 5 | SELECT * FROM `BOOK_DETAILS` WHERE `KEYWORD` LIKE 'WIZARD,ADVENTURES' | 0.0005 sec |
| 6 | SELECT * FROM `BOOK_DETAILS` WHERE `ISBN` = 978 | 0.0008 sec |
| 7 | SELECT * FROM `BOOK_DETAILS` WHERE `ABSTRACT` LIKE 'A SERIES OF SEVEN FANTASY NOVELS' | 0.0006 sec |
| 8 | SELECT * FROM `BOOK_DETAILS` WHERE `YEAR_OF_PUBLISHING` = '2000-03-08' | 0.0006 sec |
| 9 | SELECT * FROM `BOOK_DETAILS` WHERE `ID` = 1001 AND `TITLE` LIKE 'HARRY POTTER' | 0.0005 sec |
| 10 | SELECT * FROM `BOOK_DETAILS` WHERE `ID` = 1001 AND `TITLE` LIKE 'HARRY POTTER' AND `AUTHOR` LIKE 'J. K. ROWLING' | 0.0005 sec |
| 11 | SELECT * FROM `BOOK_DETAILS` WHERE `ID` = 1001 AND `TITLE` LIKE 'HARRY POTTER' AND `AUTHOR` LIKE 'J. K. ROWLING' AND `PUBLISHER` LIKE 'CITYHILLS' | 0.0008 sec |
| 12 | SELECT * FROM `BOOK_DETAILS` WHERE `ID` = 1001 AND `TITLE` LIKE 'HARRY POTTER' AND `AUTHOR` LIKE 'J. K. ROWLING' AND `PUBLISHER` LIKE 'CITYHILLS' AND `KEYWORD` LIKE 'WIZARD,ADVENTURES' AND `ISBN` = 978 | 0.0006 sec |
| 13 | SELECT * FROM `BOOK_DETAILS` WHERE `ID` = 1001 AND `TITLE` LIKE 'HARRY POTTER' AND `AUTHOR` LIKE 'J. K. ROWLING' AND `PUBLISHER` LIKE 'CITYHILLS' AND `KEYWORD` LIKE 'WIZARD,ADVENTURES' AND `ISBN` = 978 | 0.0006 sec |

| | | |
|----|---|------------|
| | AND `YEAR_OF_PUBLISHING` = '2000-03-08' | |
| 14 | SELECT * FROM `BOOK_DETAILS` WHERE `ID` = 1001 AND `TITLE` LIKE 'HARRY POTTER' AND `AUTHOR` LIKE 'J. K. ROWLING' AND `ISBN` = 978 AND `PUBLISHER` LIKE 'CITYHILLS' AND `KEYWORD` LIKE 'WIZARD,ADVENTURES' AND `YEAR_OF_PUBLISHING` = '2000-03-08' | 0.0006 sec |

OPTIMISED QUERY ARE 3, 5,9,10.

TABLE: RATINGS

Q: GET ALL RATING DETAILS OF BOOK ID=1002

| | ID | BID | Ratings | Note | U ID | PRIVILEGE |
|---|----|------|---------|------------------|------|-----------|
|   | 1 | 1002 | 4 | great story | 2 | FACULTY |
|   | 3 | 1002 | 3 | bed time stories | 3 | STUDENT |

| SEARCH NO | QUERY | TIME |
|-----------|--|-----------------------|
| 1 | SELECT * FROM `book_ratings` WHERE `BID` = 1002; | Query took 0.0007 sec |

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